

An optical communication system including a transmitter, an optical information channel, and a receiver. The transmitter is configured to transmit a plurality of optical signals in L-band wavelengths or between about 1560 nm and about 1630 nm. Use of the L-band in long-haul optical systems permits transmission over at least about 2,000 kilometers from an originating light source such as a transmitter or another regenerator. A method of modulating and transmitting data signals in the L-band is also provided.